

encoding each of the plural remotely predicted units in the segment relative to the independent unit in the segment to thereby decrease susceptibility to loss in the plural remotely predicted units in the segment.

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2. (Amended) The method of claim 1 wherein the classifying is performed dynamically while previously classified and encoded data units are being transmitted.

3. (Amended) The method of claim 2 wherein the classifying includes dynamically selecting a spacing of remotely predicted units as the encoded data units are being transmitted.

4. The method of claim 3 wherein the spacing of remotely predicted units is determined dynamically based on a priority assigned to media content being transmitted.

5. The method of claim 3 wherein the spacing of remotely predicted units is determined dynamically based on data transmission rate.

6. The method of claim 3 wherein the spacing of remotely predicted units is dynamically determined based on a measure of data loss detected in previously transmitted data units.

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✓ 7. (Amended) The method of claim 1 further including;
prioritizing encoded data units for transmission such that independent units are transmitted with highest priority, remotely predicted units are transmitted with next highest priority, and predicted units are transmitted with lowest priority.

8. (Amended) The method of claim 7 wherein the transmission of the prioritized encoded data units is subject to available bandwidth constraints.

9. The method of claim 1 wherein the data units are video frames.

10. The method of claim 1 wherein the data units are audio frames.

11. (Amended) A computer readable medium having instructions for performing the method of claim 1.

12. (Amended) A method for decoding streaming media comprising a series of data units, where the data units are arranged in plural segments, the method comprising:

decoding an encoded bit stream to identify the data units in the series for decoding as one of the following types of data units: an independent unit, a predicted unit, and a remotely predicted unit;

decoding a segment of the plural segments, including:

decoding an independent unit in the segment using only information from the independent unit;

decoding each of plural remotely predicted units in the segment relative to the decoded independent unit in the segment; and

decoding at least one predicted unit in the segment relative to a decoded one of the plural remotely predicted units in the segment.

13. (Amended) A computer readable medium having instructions for performing the method of claim 12.

14. (Amended) The method of claim 12 wherein the remotely predicted units form a first level of remotely predicted units, the encoded bit stream includes the first and a second level of remotely predicted units, and the second level of remotely predicted units includes at least one second-level remotely predicted unit that is predicted from a remotely predicted unit in the first level; and the method includes:

decoding the second-level remotely predicted unit relative to the remotely predicted unit in the first level.

15. (Amended) A method for classifying data units in a media stream for prediction-based coding, the method comprising:

reading an ordered sequence of data units in an input media stream;

classifying each of the data units in the series as one of the following types of encoded data units: an independent unit, a predicted unit, and a remotely predicted unit, such that the data units in the series are organized into plural segments;

wherein each of the data units classified as an independent unit is designated to be encoded using only information from the independent unit;

wherein at least one data unit classified as a predicted unit is designated to be predicted from an adjacent remotely predicted unit in the series; and

wherein each of plural data units classified as remotely predicted units in a particular segment is designated to be predicted from a single independent unit in the particular segment to thereby decrease susceptibility to loss in the remotely predicted units in the particular segment.

16. (Amended) The method of claim 15 wherein the classifying classifies the first data unit in each segment as an independent unit, and classifies each data unit following the first data unit in the segment as a predicted unit or a remotely predicted unit.

17. The method of claim 15 wherein the remotely predicted units are classified dynamically during transmission of previously encoded data units based on a measure of data transfer reliability.

18. The method of claim 15 wherein the remotely predicted units are classified based on a measure of available bandwidth for transferring encoded data units.

19. The method of claim 15 wherein the remotely predicted units are classified based a user adjustable input parameter.

20. The method of claim 19 wherein the user adjustable parameter indicates spacing of remotely predicted units in independent segments.

21. The method of claim 19 wherein the remotely predicted units are classified based on a user definable relationship between type of media content and spacing of the remotely predicted units in independent segments.

22. (Amended) The method of claim 15 wherein the remotely predicted units are classified based on a measure of fidelity of playback of the media stream.

B4 23. (Amended) The method of claim 15 wherein the remotely predicted units are classified such that the series includes two or more levels of remotely predicted units, with a first level of remotely predicted units in a segment that are each directly dependent on an independent unit of the segment, and with at least a second level of remotely predicted units in the segment, including a second level remotely predicted unit that is directly dependent on a remotely predicted unit in the first level.

24. (Amended) A computer readable medium having instructions for performing the method of claim 15.

25. A method for coding streaming media comprising a series of data units, the method comprising:

classifying each of the data units in the series as one of the following types of encoded data units: an independent unit, a predicted unit, and a remotely predicted unit, such that the data units in the series are organized into segments, and each segment has an independent data unit, two or more predicted units and at least one remotely predicted unit, wherein the independent data unit is a data recovery point and a random access point in the series of data units, and the remotely predicted unit is a data recovery point in the series of data units that is classified independently from the random access point and is coded with more efficiency than the independent data unit;

encoding each of the data units classified as an independent data unit in a compressed format using only information from the data unit;

encoding each of the data units classified as a predicted unit in a compressed format by encoding differences between the data unit and an adjacent data unit in the series; and

encoding each of the data units classified as a remotely predicted unit in a compressed format by encoding differences between the data unit and a remote, non-adjacent data unit in the segment, selected as either the independent unit or another remotely predicted unit in the segment.

26. A method for coding streaming media comprising a series of data units, the method comprising:

classifying each of the data units in the series as one of the following types of encoded data units: an independent unit, a predicted unit, and a remotely predicted unit, such that the data units in the series are organized into segments, and each segment has an independent data unit, two or more predicted units and two or more remotely predicted units, wherein the independent data unit is a data recovery point and a random access point in the series of data units, and the remotely predicted units are data recovery points in the series of data units that are classified independently from the random access point and are located closer together in the series of data units than the independent data units;

encoding each of the data units classified as an independent data unit in a compressed format using only information from the data unit;

encoding each of the data units classified as a predicted unit in a compressed format by encoding differences between the data unit and an adjacent data unit in the series;

encoding each of the data units classified as a remotely predicted unit in a compressed format by encoding differences between the data unit and a remote, non-adjacent data unit in the segment, selected as either the independent unit or another remotely predicted unit in the segment; and

prioritizing encoded data units for transmission such that independent data units are transmitted with highest priority, remotely predicted units are transmitted with next highest priority, and predicted units are transmitted with lowest priority.

Please add the following claims.

27. (New) A method for classifying data units in a media stream for prediction-based coding, the method comprising:

reading an ordered sequence of data units in an input media stream;

classifying each of the data units in the series as one of the following types of encoded data units: an independent unit, a predicted unit, and a remotely predicted unit, such that the data units in the series are organized into segments, and each segment has an independent data unit, two or more predicted units and two or more remotely predicted units, wherein the independent data unit is a data recovery point and a random access point in the series of data units, and the remotely predicted units are data recovery points in the series of data units that are classified independently from the random

access point and are located closer together in the series of data units than the independent data units, wherein the remotely predicted units are classified based a user adjustable input parameter, and wherein the remotely predicted units are classified based on a user definable relationship between type of media content and spacing of the remotely predicted units in independent segments.

wherein each of the data units classified as an independent data unit is designated to be encoded using only information from the data unit;

wherein each of the data units classified as a predicted unit is designated to be predicted from an adjacent data unit in the series; and

wherein each of the data units classified as a remotely predicted unit is designated to be predicted from a remote, non adjacent data unit in the series, which is either another remotely predicted unit or an independent data unit.

BS 28. (New) A computer-readable medium storing computer-executable instructions for causing a computer programmed thereby to perform a method of processing a segment of plural video frames, wherein the segment includes one or more independent frames, one or more predicted frames, and one or more remotely predicted frames, the method comprising:

encoding the plural video frames of the segment; and

prioritizing the encoded video frames for transmission such that independent frames are transmitted with highest priority, remotely predicted frames are transmitted with next highest priority, and predicted frames are transmitted with lowest priority.

29. (New) The computer-readable medium of claim 28 further comprising:
transmitting the encoded video frames according to priority and bandwidth constraints.

30. (New) The computer-readable medium of claim 28 wherein for each of plural remotely predicted frames the encoding comprises inter-frame coding relative to a single independent frame in the segment.

31. (New) The computer-readable medium of claim 28 wherein a remotely predicted frame spacing parameter balances bitrate of the segment against loss recovery capability for the segment.

32. (New) A computer-readable medium storing computer-executable instructions for causing a computer programmed thereby to perform a method of encoding a group of plural video frames, the group including an independent frame, plural predicted frames, and plural remotely predicted frames, the method comprising:

buffering the independent frame for encoding each of the plural remotely predicted frames in the group;

encoding the independent frame by intra-frame coding;

encoding each of the plural remotely predicted frames by inter-frame coding relative to the buffered independent frame, thereby protecting each of the plural remotely predicted frames against loss in other remotely predicted frames in the group; and

encoding each of the plural predicted frames by inter-frame coding, including inter-frame coding at least one predicted frame relative to one of the plural remotely predicted frames in the group.

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33. (New) A computer-readable medium storing computer-executable instructions for causing a computer programmed thereby to perform a method of decoding a group of plural video frames, the group including an independent frame, plural predicted frames, and plural remotely predicted frames, the method comprising:

decoding the independent frame by intra-frame decoding;

buffering the decoded independent frame for decoding each of the plural remotely predicted frames in the group;

decoding each of the plural remotely predicted frames by inter-frame decoding relative to the buffered independent frame, thereby protecting each of the plural remotely predicted frames against loss in other remotely predicted frames in the group; and

decoding each of the plural predicted frames by inter-frame decoding, including inter-frame decoding at least one predicted frame relative to one of the plural remotely predicted frames in the group.

34. (New) A computer-readable medium storing computer-executable instructions for causing a computer programmed thereby to perform a method of processing a segment of plural video frames, the method comprising:

classifying each of plural video frames in a segment as an independent frame, predicted frame, or remotely predicted frame, wherein the classifying includes varying a remotely predicted frame spacing to balance bitrate of the segment against loss recovery capability for the segment; and encoding each of the plural video frames in the segment.

35. (New) The computer-readable medium of claim 34 wherein the encoding includes:
intra-frame coding each independent frame;
inter-frame coding each predicted frame relative to a preceding, adjacent frame; and
inter-frame coding each remotely predicted frame relative to an independent frame in the segment.

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36. (New) The computer-readable medium of claim 34 wherein the remotely predicted frame spacing depends upon a media content type.

37. (New) The computer-readable medium of claim 34 wherein loss measurements for a communication channel affect the classifying at run time.

38. (New) The computer-readable medium of claim 34 wherein the remotely predicted frame spacing is user adjustable.